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INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 6 :

G06F 1/00, 17/60

A3

(11) International Publication Number:

WO 96/27155

(43) International Publication Date:

6 September 1996 (06.09.96)

(21) International Application Number:

PCT/US96/02303

(22) International Filing Date:

13 February 1996 (13.02.96)

(30) Priority Data:

08/388,107

13 February 1995 (13.02.95)

US

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(81) Designated States: AL, AM, AT, AU, AZ, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IS, JP, KE, KG, KP, KR, KZ, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, TJ, TM, TR, TT, UA, UG, UZ, VN, ARIPO patent (KE, LS, MW, SD, SZ, UG), Eurasian patent (AZ, BY, KG, KZ, RU, TJ, TM), European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG).

Published

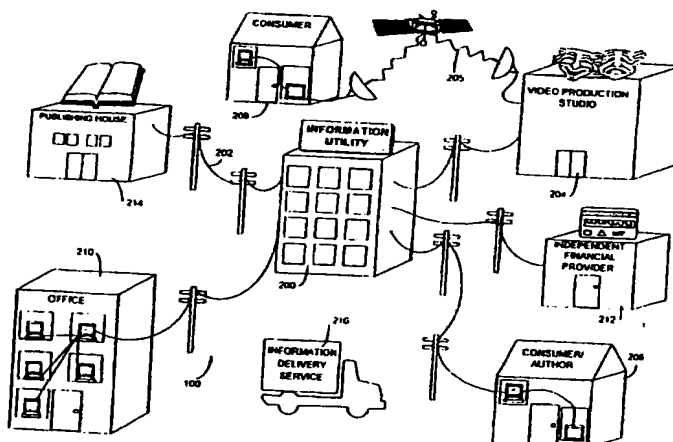
With international search report.

Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.

(88) Date of publication of the international search report:

19 June 1997 (19.06.97)

(54) Title: SYSTEMS AND METHODS FOR SECURE TRANSACTION MANAGEMENT AND ELECTRONIC RIGHTS PROTECTION



(57) Abstract

The present invention provides systems and methods for electronic commerce including secure transaction management and electronic rights protection. Electronic appliances such as computers employed in accordance with the present invention help to ensure that information is accessed and used only in authorized ways, and maintain the integrity, availability, and/or confidentiality of the information. Secure subsystems used with such electronic appliances provide a distributed virtual distribution environment (VDE) that may enforce a secure chain of handling and control, for example, to control and/or meter or otherwise monitor use of electronically stored or disseminated information. Such a virtual distribution environment may be used to protect rights of various participants in electronic commerce and other electronic or electronic-facilitated transactions. Secure distributed and other operating system environments and architectures, employing, for example, secure semiconductor processing arrangements that may establish secure, protected environments at each node. These techniques may be used to support an end-to-end electronic information distribution capability that may be used, for example, utilizing the "electronic highway".

* (Referred to in PCT Gazette No. 52/1996, Section II)

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INTERNATIONAL SEARCH REPORT

International Application No
PCT/US 96/02303

A. CLASSIFICATION OF SUBJECT MATTER
IPC 6 G06F1/00 G06F17/60

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 6 G06F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
	-/-	

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents:

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- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
- *A* document member of the same patent family

Date of the actual completion of the international search

18 April 1997

Date of mailing of the international search report

14. 05. 97

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Powell, D

INTERNATIONAL SEARCH REPORT

Internal Application No
PCT/US 96/02303

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 90 02382 A (INDATA CORP) 8 March 1990	1,2,5,6, 23,24, 62-65, 68,69, 72-77, 99-102, 133-138, 147-152, 155-158, 199,200
Y	see abstract; figures 2,15 see page 18, last paragraph - page 21, paragraph 2	21,22, 29,30, 103-108, 127-130, 223,224, 233,234, 237,238, 241-244, 504,506
A	see page 23, last paragraph - page 24, paragraph 1	61,143, 144,207, 208,245, 246, 487-500, 507-509

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INTERNATIONAL SEARCH REPORT

Internat. Application No
PCT/US 96/02303

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 319 705 A (HALTER BERNARD J ET AL) 7 June 1994	7-12, 17-20, 72-77, 133,134, 147-152, 155-158, 265-268, 298,300, 363,396
Y	see abstract; figures 2,4,12	21,22, 109,110, 115, 203-206, 213,214, 223,224, 237,238, 265, 302-305, 394,395
A	see column 4, line 33 - column 6, line 24 see column 24, line 33 - column 25, line 13	25,26, 31-38, 127-132, 207,208, 370-374, 381-384, 404

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INTERNATIONAL SEARCH REPORT

Internat. Application No
PCT/US 96/02303

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	TRANSACTIONS OF THE INSTITUTE OF ELECTRONICS, INFORMATION AND COMMUNICATION ENGINEERS OF JAPAN, vol. E73, no. 7, July 1990, TOKYO, JP, pages 1133-1146, XP000159229 R.MORI ET AL: "Superdistribution: The Concept and the Architecture"	72-77, 99-102, 127-134
Y		29,30, 103-108, 127-130, 233,234, 241-244, 504,506
A	see abstract; figure 1 see page 1134, left-hand column, line 25 - page 1135, right-hand column, line 27	31-38, 153,154, 219,220, 231,232, 370-374, 381-384, 494-497, 501-503, 511,512
X	--- EP 0 128 672 A (GALE IRA DENNIS) 19 December 1984 see abstract; figure 1 see page 11, line 1 - line 18	78,79, 139-142
A		80,81, 197,525
X	--- US 4 672 572 A (ALSBERG PETER) 9 June 1987 see abstract; figures 1,2,5,8	83,84
Y		109,110, 115, 302-305, 394,395
A	see column 2, line 9 - column 3, line 26	245,246, 253,254
Y	--- EP 0 565 314 A (FISCHER ADDISON M) 13 October 1993 see abstract	243,265
	--- -/--	

INTERNATIONAL SEARCH REPORT

International Application No
PCT/US 96/02303

C(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 4 799 156 A (SHAVIT EYAL ET AL) 17 January 1989	42-44, 203-206, 213,214
A	see abstract; figure 2 see column 7, line 47 - column 8, line 54 see column 9, line 7 - column 11, line 35	
Y	--- MAPPING NEW APPLICATIONS ONTO NEW TECHNOLOGIES, ZURICH, MAR. 8 - 10, 1988, no. -, 8 March 1988, PLATTNER B;GUNZBURGER P, pages 45-52, XP000215989 SIUDA K: "SECURITY SERVICES IN TELECOMMUNICATIONS NETWORKS" see the whole document	153,154, 207,208, 225-228, 370-374, 381-384, 494-497, 501-503 42-44
A		31-38, 55-58, 95,153, 154,231, 232
Y	--- EP 0 399 822 A (HEWLETT PACKARD CO) 28 November 1990 see the whole document	87-89
Y	--- GB 2 264 796 A (IBM) 8 September 1993 see the whole document	87-89
A	--- WO 92 22870 A (ICL DATA AB) 23 December 1992 see the whole document	93-98, 277-280, 306-318, 342-349, 375-379, 385, 387-393
A	--- US 5 343 527 A (MOORE JAMES W) 30 August 1994 see the whole document ---	93-98, 277-280, 306-318, 342-349, 375-379, 385, 387-393
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INTERNATIONAL SEARCH REPORT

International Application No
PCT/US 96/02303

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EP 0 421 409 A (IBM) 10 April 1991 see the whole document ---	225-228, 245,246, 253,254
A	US 5 103 476 A (WAITE DAVID P ET AL) 7 April 1992 see the whole document ---	319, 321-340
A	US 5 111 390 A (KETCHAM LARRY R) 5 May 1992 see the whole document ---	319, 321-340
A	US 4 823 264 A (DEMING GILBERT R) 18 April 1989 ---	
A	IBM TECHNICAL DISCLOSURE BULLETIN, vol. 37, no. 3, 1 March 1994, pages 413-417, XP000441522 "MULTIMEDIA MIXED OBJECT ENVELOPES SUPPORTING A GRADUATED FEE SCHEME VIA ENCRYPTION" ---	
A	US 5 224 163 A (GASSER MORRIE ET AL) 29 June 1993 ---	
A	WO 94 06103 A (HNC INC) 17 March 1994 ---	
A	IBM TECHNICAL DISCLOSURE BULLETIN, vol. 37, no. 4B, 1 April 1994, pages 523-525, XP000451335 "TRANSFORMER RULES STRATEGY FOR SOFTWARE DISTRIBUTION MECHANISM-SUPPORT PRODUCTS" ---	
A	WO 94 03859 A (INT STANDARD ELECTRIC CORP) 17 February 1994 -----	

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 96/02303

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see annexed sheets.

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☒ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
Inventions: 3, 6, 7, 9, 10, 24 and 29
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

International Application No. PCT/US 96/ 02303

FURTHER INFORMATION CONTINUED FROM PCT/ISA/210

The following (groups of) inventions have been identified:

Invention	Claims	Subject matter
1.	1-12,17-26,29,30,61-65,68,69,72-77,99-108,127-130,133-138,147-152,155-158,199,200,219-222,233,234,243,244,265-268,294-301,363,364,396,404,504,506	Solving problems related to: Distributing electronic information to a rightful destination using a different virtual distribution environment node (than either supplier or destination) to process the control information associated with the said digital information (cf. either of documents D1 and D2)
2.	13-16	Solving problems related to: Automating electronic processes.
3.	31-39,42-45,55-58,153,154,203-208,213-218,223-228,231,232,237,238,241,242,370-374,381-384,487-489,500,505,507-512	Solving problems related to: Electronic commerce.
4.	40,41,48-54,259-262,402	Solving problems related to: Identification of principals or principals' properties.
5.	59,60,66,67,70,71,235,236,239,240,401	Solving problems related to: Handling electronic currency.
6.	78-81,139-144,197,525	Solving problems related to: Tamper-resistant containers.
7.	82-84,109-116,127-132,273-276,302-305,394,395,494-497,501-503	Solving problems related to: Audit or administrative information.
8.	85,86	Solving problems related to: Human readable interfaces.
9.	87-92,201,202,209,210,282,283	Solving problems related to: Event or task processing.
10.	93-98,277-280,306-318,342-349,375-379,385,387-393	Solving problems related to: Checking component integrity or validity.
11.	117-122	Solving problems related to: Compromising a security system.

INTERNATIONAL SEARCH REPORT

International Application No. PCT/US 96/02303

FURTHER INFORMATION CONTINUED FROM PCT/ISA/210

- | | | |
|-----|---|---|
| 12. | 123-126 | Solving problems related to:
Electronic data fingerprinting. |
| 13. | 159,160,194-196,400,516,
523,524 | Solving problems related to:
Secure processors. |
| 14. | 161-166,517 | Solving problems related to:
Video controllers. |
| 15. | 167-172,175,176,518,519 | Solving problems related to:
Network communications. |
| 16. | 173,174,520 | Solving problems related to:
CD-ROM controllers. |
| 17. | 177,178,521 | Solving problems related to:
Set-top controllers. |
| 18. | 179-185,522 | Solving problems related to:
Electronic games. |
| 19. | 186-193 | Solving problems related to:
Multimedia communications. |
| 20. | 198,526 | Solving problems related to:
Detection of power supply interruption. |
| 21. | 145,146 | Solving problems related to:
Bitmap data structures. |
| 22. | 211,212 | Solving problems related to:
Modular control structures. |
| 23. | 229,230 | Solving problems related to:
Billing and budgeting. |
| 24. | 245,248,253,254,341,
350-353,360-362 | Solving problems related to:
Protected processing operations. |
| 25. | 27,28,247-252,513-515 | Solving problems related to:
Secure database management. |
| 26. | 263,264 | Solving problems related to:
Secure electronic mail. |
| 27. | 269-272 | Solving problems related to:
Controlling a robot. |

INTERNATIONAL SEARCH REPORT

International Application No. PCT/US 96/02303

FURTHER INFORMATION CONTINUED FROM PCTISA/210

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|-----|-------------------------|---|
| 28. | 284-293,482-486 | Solving problems related to:
Business automation. |
| 29. | 319,321-340 | Solving problems related to:
Software construction. |
| 30. | 320,369,380 | Solving problems related to:
Resource management. |
| 31. | 354-359,365-368 | Solving problems related to:
Combining or modifying data. |
| 32. | 397 | Solving problems related to:
Point of sale systems. |
| 33. | 398,399,490-493,498,499 | Solving problems related to:
Advertising. |
| 34. | 403 | Solving problems related to:
Renting an appliance. |
| 35. | 255-258,281,386 | Solving problems related to:
Rights described in software. |

A concise analysis shows that the Special Technical Features of these 35 groups of claims, as determined by comparison with the features disclosed in either of documents D1 or D2, are not the same. A comparison of the objective problems related to these different groups of inventions, all seen in the light of the description and the drawings of the application, shows that these objective problems are all different and have no corresponding technical effect.

Consequently, the Special Technical Features of these different groups of inventions are neither the same nor corresponding as defined in Rule 13.2 PCT, 2nd sentence, and therefore the requirement of Unity of Invention (Rule 13.1, 2 PCT) has not been fulfilled.

Finally, it should be noted that searching the additional subject-matter of any of the groups of claims 2-35 would have involved a considerable additional search effort.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No
PCT/US 96/02303

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 9002382 A	08-03-90	AU 4188289 A EP 0472521 A US 5247575 A	23-03-90 04-03-92 21-09-93
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INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 96/02303

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		JP 7502847 T	23-03-95